

Office Action Summary

Application No.

09/729,748

Applicant(s)

RAZZELL, CHARLES

Examiner

Chieh M Fan

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8-12,19 and 20 is/are rejected.
- 7) ☒ Claim(s) 2-7 and 13-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 8-12, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. ("Normalization, windowing and quantization of soft-decision Viterbi decoder inputs in CDMA", IEEE 1999 Vehicular Technology Conference, pp.221-225, provided by the applicant in the IDS filed 8/13/02, USPTO Paper#3).

Regarding claims 1 and 12, Lee et al. teach a method of demodulating and decoding an encoded interleaved signal, said method comprising:

demodulating a received encoded interleaved signal thereby producing soft-decision demodulated output words (page 221, right column, lines 3-5 from the bottom; also see lines 2-3 in abstract);

de-interleaving and scaling said soft-decision demodulated output words thereby producing de-interleaved and scaled words, said scaling being performed for a plurality of successively demodulated output words at a time, thereby applying scaling factors that have substantially the same value for adjacent demodulated output words of said plurality of successively demodulated output words, said de-interleaved and scaled

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words being word-length-reduced words; (See page 221, right column, lines 1-3 from the bottom; lines 6-13 in the abstract. Also see page 222 the whole section III, that is, the received symbols are normalized by a normalization factor m . Also note that since the data are encoded by convolutional code and interleaved before transmitted, see Fig. 1 and the first paragraph of section II, it is inherent/implicit that the received data must be de-interleaved before sent to the Viterbi decoder.) and

decoding said de-interleaved and scaled words (page 222, left column, lines 1-3; lines 11-13 in abstract; also see page 221, left column, lines 6-7 from the bottom).

Regarding claims 8 and 19, Lee et al. teach a rake receiver (lines 1-2 of the abstract).

Regarding claims 9, 10 and 20, Lee et al. teach a Viterbi decoder (lines 6-8 of the abstract).

Regarding claim 11, Lee et al. teach that the received encoded interleaved signal is convolutional encoded (see Fig. 1, also see Section II, lines 6-7 in the first paragraph).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 8-12, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (U.S. Patent No. 6,621,850) in view of the admitted prior art described in pages 2-3 of the present application.

Regarding claims 1 and 12, Li et al. teach a method of demodulating and decoding an encoded interleaved signal, said method comprising:

demodulating a received encoded interleaved signal thereby producing soft-decision demodulated output words (310,320,330,505,540 in Fig. 2, also note 545 in Fig. 2 is the soft decision data, see col. 6, line 54);

de-interleaving said soft-decision demodulated output words thereby producing de-interleaved words; (550 in Fig. 2.) and

decoding said de-interleaved words (560 in Fig. 2).

Li et al. fail to teach the step of scaling the soft decision demodulated output words and applying scaling factors that have substantially the same value for successively demodulated output words.

However, the admitted prior art as described in pages 2, line 25 through page 3, line 6 of the present application teaches that soft decision scaling and quantization methods in digital receivers are known that reduce the amount of memory and the complexity of the arithmetic in the receiver, as part of Viterbi forward error correction algorithm (page 2, lines 25-28). The admitted prior art also teaches known methods of scaling include application of a fixed scaling factor (page 2, line 32 through page 3, line1).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the step of scaling the soft-decision demodulated output words into the demodulating method of Li et al., so as to reduce the amount of memory and the complexity of the arithmetic in the receiver of Li et al.

Regarding claims 8 and 19, Li et al. teach a rake receiver (320 in Fig. 2; col. 4, line 46).

Regarding claims 9, 10 and 20, Li et al. teach a Viterbi decoder (560 in Fig. 2; col. 7, line 2).

Regarding claim 11, Li et al. teach that the received encoded interleaved signal is convolutional encoded (see 150, 170 in Fig. 1, also see col. 10, line 65).

Allowable Subject Matter

5. Claims 2-7 and 13-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 5/10/04 have been fully considered but they are not persuasive.

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a. With respect to the Lee reference, the applicant argues that Lee does not teach “scaling factors that have substantially the same value for adjacent demodulated output words of said successively demodulated output words” because the method taught by Lee for determining normalization or scale factors based on a current frame may vary substantially from one frame to the next.

Examiner’s response --- The applicant only recites “substantially the same”, but never defines what degree of similarity is called “substantially the same” in the claim. The applicant is reminded that the examiner is entitled to give the broadest reasonable interpretation to the language of the claims. The examiner is not limited to the applicant’s definition which is not specifically set forth in the claims. See *In re Tanaka et al.*, 193 USPQ 139, (CCPA) 1977. In the present application, if the scaling factors determined from Figs 4 and 5 of the present application may be called “substantially the same”, the scaling factors determined from the method of Lee clearly may also be called “substantially the same”. Especially in Fig. 5 of the present application, the amplitude data from one frame (which may vary substantially from one frame to the next) is used to determine the scaling factor of the next frame.

b. With respect to the Li reference in view of the admitted prior art Stelle, the applicant argues that neither of Li and Stelle teaches “scaling factors that have substantially the same value for adjacent demodulated output words of said successively demodulated output words”.

Examiner’s response --- The applicant is again reminded that the degree of similarity to be called “substantially the same” is never defined in the claim. As shown

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in Fig. 4 of the present application, the scaling factor SF applied is $0.7 \cdot SF$, $1.4 \cdot SF$ or SF. That is, according to the specification, anything between $0.7SF$ to $1.4SF$ is called “substantially the same” scaling factor. Since the fixed scaling factor taught by Stelle falls within such range, the teaching of Stella clearly meets the claimed limitation.

Further, although Stella teaches applying fixed scaling factors, it is understood in the art the scaling factors cannot be expected to be exactly the same due to inherent noise in the system. Based on the reason above, the teaching of Stella meets the limitation “scaling factors that have substantially the same value for adjacent demodulated output words of said successively demodulated output words”.

c. The applicant further argues that the combination of Li and Stelle would have no reasonable expectation of success to develop the novel feature of the present invention because the fixed scaling factors taught by Stelle “is prone to loss of information due to underflow and overflow”.

Examiner’s response --- The examiner proposes combining the teachings of Li and Stelle to meet the claimed limitation, not to develop the novel feature of the present invention. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, the examiner proposed to combine the Li and Stelle references for the advantage of reducing the amount of memory and the complexity of the arithmetic in the receiver. Such advantage is clearly achievable. The combination of Li and Stelle clearly has reasonable expectation of success.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M Fan whose telephone number is (703) 305-0198. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.

A handwritten signature in black ink, appearing to read "Chieh M Fan".

Chieh M Fan
Primary Examiner
Art Unit 2634

cmf
July 12, 2004

USPTO TO PROVIDE ELECTRONIC ACCESS TO CITED U.S. PATENT REFERENCES WITH OFFICE ACTIONS AND CEASE SUPPLYING PAPER COPIES

In support of its 21st Century Strategic Plan goal of increased patent e-Government, beginning in June 2004, the United States Patent and Trademark Office (Office or USPTO) will begin the phase-in of its E-Patent Reference program and hence will: (1) **provide downloading capability of the U.S. patents and U.S. patent application publications cited in Office actions** via the E-Patent Reference feature of the Office's Patent Application Information Retrieval (PAIR) system; and (2) **cease mailing paper copies of U.S. patents and U.S. patent application publications with Office actions** (in applications and during reexamination proceedings) except for citations made during the international stage of an international application under the Patent Cooperation Treaty (PCT). In order to use the new E-Patent Reference feature applicants must: (1) obtain a digital certificate and software from the Office; (2) obtain a customer number from the Office; and (3) properly associate patent applications with the customer number. Alternatively, copies of all U.S. patents and patent application publications can be accessed without a digital certificate from the USPTO web site, from the USPTO Office of Public Records, and from commercial sources. The Office will continue the practice of supplying paper copies of foreign patent documents and non-patent literature with Office actions. Paper copies of cited references will continue to be provided by the USPTO for international applications during the international stage.

Schedule

June 2004	TCs 1600, 1700, 2800 and 2900
July 2004	TCs 3600 and 3700
August 2004	TCs 2100 and 2600

All U.S. patents and U.S. patent application publications are available on the USPTO web site. However, a simple system for downloading the cited U.S. patents and patent application publications has been established for applicants, called the E-Patent Reference system. As E-Patent Reference and Private PAIR require participating applicants to have a customer number, retrieval software and a digital certificate, all applicants are strongly encouraged to contact the Patent Electronic Business Center to acquire these items. To be ready to use this system by June 1, 2004, contact the Patent EBC as soon as possible by phone at 866-217-9197 (toll-free), 703-305-3028 or 703-308-6845 or electronically via the Internet at ebc@uspto.gov.

Other Options

The E-Patent Reference function requires the applicant to use the secure Private PAIR system, which establishes confidential communications with the applicant. Applicants using this facility must receive a digital certificate, as described above. Other options for obtaining patents which do not require the digital certificate include the USPTO's free Patents on the Web program (<http://www.uspto.gov/patft/index.html>). The USPTO's Office of Public Records also supplies copies of patents for a fee (<http://ebiz1.uspto.gov/oems25p/index.html>). Commercial sources also provide U.S. patents and patent application publications.

For complete instructions see the Official Gazette Notice, USPTO TO PROVIDE ELECTRONIC ACCESS TO CITED U.S. PATENT REFERENCES WITH OFFICE ACTIONS AND CEASE SUPPLYING PAPER COPIES, on the USPTO web site.

**NOTICE OF OFFICE PLAN TO CEASE SUPPLYING COPIES OF CITED U.S. PATENT
REFERENCES WITH OFFICE ACTIONS, AND PILOT TO EVALUATE THE
ALTERNATIVE OF PROVIDING ELECTRONIC ACCESS TO SUCH U.S. PATENT
REFERENCES**

Summary

The United States Patent and Trademark Office (Office or USPTO) plans in the near future to: (1) cease mailing copies of U.S. patents and U.S. patent application publications (US patent references) with Office actions except for citations made during the international stage of an international application under the Patent Cooperation Treaty and those made during reexamination proceedings; and (2) provide electronic access to, with convenient downloading capability of, the US patent references cited in an Office action via the Office's private Patent Application Information Retrieval (PAIR) system which has a new feature called "E-Patent Reference." Before ceasing to provide copies of U.S. patent references with Office actions, the Office shall test the feasibility of the E-Patent Reference feature by conducting a two-month pilot project starting with Office actions mailed after December 1, 2003. The Office shall evaluate the pilot project and publish the results in a notice which will be posted on the Office's web site (www.USPTO.gov) and in the Patent Official Gazette (O.G.). In order to use the new E-Patent Reference feature during the pilot period, or when the Office ceases to send copies of U.S. patent references with Office actions, the applicant must: (1) obtain a digital certificate from the Office; (2) obtain a customer number from the Office, and (3) properly associate applications with the customer number. The pilot project does not involve or affect the current Office practice of supplying paper copies of foreign patent documents and non-patent literature with Office actions. Paper copies of references will continue to be provided by the USPTO for searches and written opinions prepared by the USPTO for international applications during the international stage and for reexamination proceedings.

Description of Pilot Project to Provide Electronic Access to Cited U.S. Patent References

On December 1, 2003, the Office will make available a new feature, E-Patent Reference, in the Office's private PAIR system, to allow more convenient downloading of U.S. patents and U.S. patent application publications. The new feature will allow an authorized user of private PAIR to download some or all of the U.S. patents and U.S. patent application publications cited by an examiner on form PTO-892 in Office actions, as well as U.S. patents and U.S. patent application publications submitted by applicants on form PTO/SB08 (1449) as part of an IDS. The retrieval of some or all of the documents may be performed in one downloading step with the documents encoded as Adobe Portable Document format (.pdf) files, which is an improvement over the current page-by-page retrieval capability from other USPTO systems.

Steps to Use the New E-Patent Reference Feature During the Pilot Project and Thereafter

Access to private PAIR is required to utilize E-Patent Reference. If you don't already have access to private PAIR, the Office urges practitioners, and applicants not represented by a practitioner, to take advantage of the transition period to obtain a no-cost USPTO Public Key Infrastructure (PKI) digital certificate, obtain a USPTO customer number, associate all of their pending and new application filings with their customer number, install no-cost software (supplied by the Office) required to access private PAIR and E-Patent Reference feature, and make appropriate arrangements for Internet access. The full instructions for obtaining a PKI digital certificate are available at the Office's Electronic Business Center (EBC) web page at: [<http://www.uspto.gov/ebc/downloads.html>](http://www.uspto.gov/ebc/downloads.html). Note that a notarized signature will be required to obtain a digital certificate.

To get a Customer Number, download and complete the Customer Number Request form, PTO-SB125, at: <http://www.uspto.gov/web/forms/sb0125.pdf>. The completed form can then be transmitted by facsimile to the Electronic Business Center at (703) 308-2840, or mailed to the address on the form. If you are a registered attorney or patent agent, then your registration number must be associated with your customer number. This is accomplished by adding your registration number to the Customer Number Request form. A description of associating a customer number with an application is described at the EBC web page at: http://www.uspto.gov/ebc/registration_pair.html.

The E-Patent Reference feature will be accessed using a new button on the private PAIR screen. Ordinarily all of the cited U.S. patent and U.S. patent application publication references will be available over the Internet using the Office's new E-Patent Reference feature. The size of the references to be downloaded will be displayed by E-Patent Reference so the download time can be estimated. Applicants and registered practitioners can select to download all of the references or any combination of cited references. Selected references will be downloaded as complete documents as Adobe Portable Document Format (.pdf) files. For a limited period of time, the USPTO will include a copy of this notice with Office actions to encourage applicants to use this new feature and, if needed, to take the steps outlined above in order to be able to utilize this new feature during the pilot and thereafter.

During the two-month pilot, the Office will evaluate the stability and capacity of the E-Patent Reference feature to reliably provide electronic access to cited U.S. patent and U.S. patent application publication references. While copies of U.S. patent and U.S. patent application publication references cited by examiners will continue to be mailed with Office actions during the pilot project, applicants are encouraged to use the private PAIR and the E-Patent Reference feature to electronically access and download cited U.S. patent and U.S. patent application publication references so the Office will be able to objectively evaluate its performance. The public is encouraged to submit comments to the Office on the usability and performance of the E-Patent Reference feature during the pilot. Further, during the pilot period registered practitioners, and applicants not represented by a practitioner, are encouraged to experiment with the feature, develop a proficiency in using the feature, and establish new internal processes for using the new access to the cited U.S. patents and U.S. patent application publications to prepare for the anticipated cessation of the current Office practice of supplying copies of such cited

references. The Office plans to continue to provide access to the E-Patent Reference feature during its evaluation of the pilot.

Comments

Comments concerning the E-Patent Reference feature should be in writing and directed to the Electronic Business Center (EBC) at the USPTO by electronic mail at eReference@uspto.gov or by facsimile to (703) 308-2840. Comments will be posted and made available for public inspection. To ensure that comments are considered in the evaluation of the pilot project, comments should be submitted in writing by January 15, 2004.

Comments with respect to specific applications should be sent to the Technology Centers' customer service centers. Comments concerning digital certificates, customer numbers, and associating customer numbers with applications should be sent to the Electronic Business Center (EBC) at the USPTO by facsimile at (703) 308-2840 or by e-mail at EBC@uspto.gov.

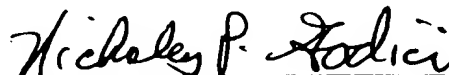
Implementation after Pilot

After the pilot, its evaluation, and publication of a subsequent notice as indicated above, the Office expects to implement its plan to cease mailing paper copies of U.S. patent references cited during examination of non provisional applications on or after February 2, 2004; although copies of cited foreign patent documents, as well as non-patent literature, will still be mailed to the applicant until such time as substantially all applications have been scanned into IFW.

For Further Information Contact

Technical information on the operation of the IFW system can be found on the USPTO website at <http://www.uspto.gov/web/patents/ifw/index.html>. Comments concerning the E-Patent Reference feature and questions concerning the operation of the PAIR system should be directed to the EBC at the USPTO at (866) 217-9197. The EBC may also be contacted by facsimile at (703) 308-2840 or by e-mail at EBC@uspto.gov.

Date. 12/1/03



Nicholas P. Godici
Commissioner for Patents